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Cost of Producing Pork

By

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and

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CORVALLIS, OREGON

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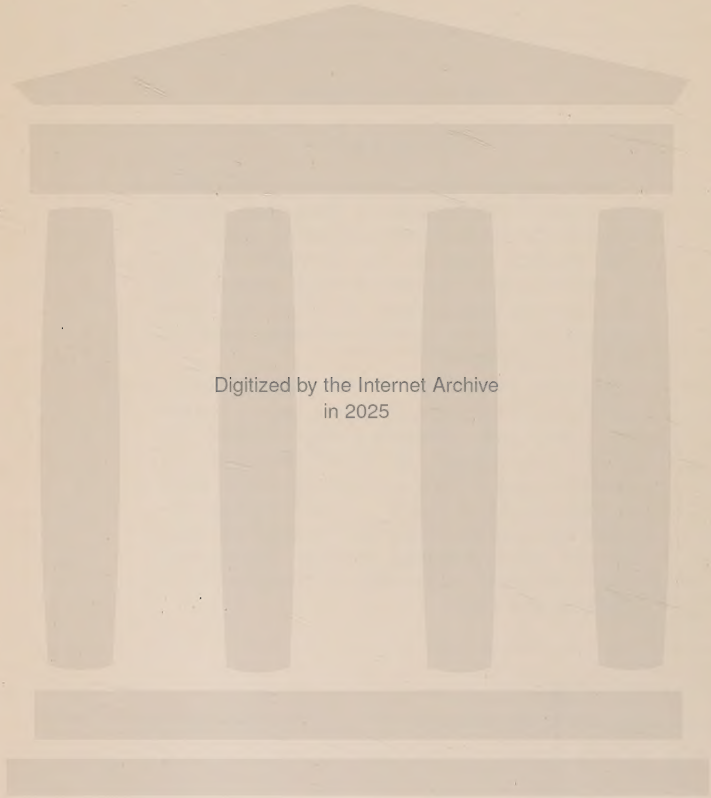
SUMMARY

Allowing the market price for everything, the cost of 100 pounds of pork live weight will be the price of 616 pounds of grain. It will actually take but 450 pounds of grain to produce 100 pounds of pork, but to the cost of the grain must be added 35 to 40 percent for labor, interest, housing, and the overhead expenses.

At least 30 percent of the cost of raising a 200-pound market pig comes before weaning time, and weanling pigs should be priced accordingly. A thrifty weanling pig should therefore bring about the same price as 375 pounds of grain. It will actually require but half as much feed to produce him, but the labor, housing, interest, losses, and other overhead expenses will amount to as much as the feed.



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Cost of Producing Pork

By
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Every pig raiser in Oregon wishes some simple rule whereby he may estimate with a fair degree of accuracy the probable cost of pork production under his own conditions. Also, with the growing practice of one farmer raising pigs to the weaning age and another finishing them for market, there comes the question of the cost of producing the weanling as compared with the cost of the 200-pound pig ready for the market. This circular aims to answer these questions as accurately as possible.

The basis of all pig feeding is grain; that is, corn, ground wheat, or barley, supplemented with a small percentage of some protein feed such as tankage, fish meal, skim milk, etc. Other feeds may be substituted for the above, but the substitutes must furnish essentially the same nutrients. In this discussion the term "grain" will be used to indicate

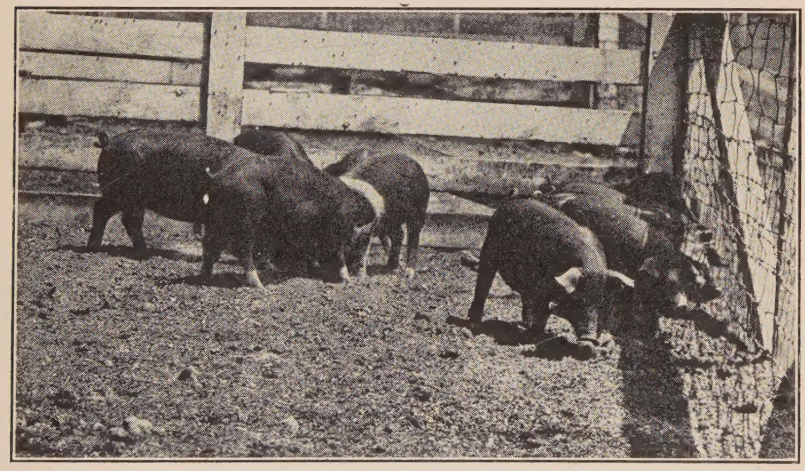

Fig. 1. Thirty percent of the cost of the finished pig is incurred before weaning time.

any good, well balanced feed or combination of feeds. In this we figure whole corn, ground wheat or ground barley as having equal value when properly supplemented.

Number of pigs per litter is big factor. All investigations show that the big factor in the cost of producing weanling pigs is the number of pigs raised in each litter. The feed necessary to produce a litter is about the same whether it is a large litter or a small one, and there

seems to be no good evidence that the weanling pigs from the large litters are particularly inferior or less thrifty than the pigs from small litters. To avoid confusion, we shall therefore first consider the cost of producing one litter. From that the cost of the individual pig may be easily calculated.

Sows average about three litters in two years. It is the general practice among hog producers in Oregon to raise two litters a year as far as may be practicable. Fall pigs farrowed by September 15 usually make thrifty pigs that will make normal growth. Late fall pigs, however, are seldom thrifty and the cost is prohibitive. We find it therefore the most desirable practice to breed all of the sows for spring farrowing, then to breed for fall farrowing only those sows which may be bred prior to May 25 and which will therefore farrow before September 15. This makes it possible both to avoid late fall litters and to give the sows which have for any reason farrowed late in the spring a chance to catch up with their schedule. If practically all the sows farrow in the spring, one-half to two-thirds of them will produce fall litters at the proper time; and, of course, some sows will fail to breed even in the spring. As a practical working proposition, through a series of years, we may reasonably expect a sow to produce an average of about three litters every two years.

Feed requirement and costs. The feed requirements for the average sow will be as follows: From November 1 to March 1 she will require about 4 pounds of grain or its equivalent per day. From March 1 to May 1, assuming March 1 to be the date of farrowing, she will require 10 pounds per day after she gets well started on feed, making an average for the entire time from March 1 to May 1 of 9 pounds. Assuming May 1 as the normal date for weaning, the dry sows may be run from May 1 to September 1 on clover, rape, or alfalfa pasture without grain. One-fourth to one-half acre of such pasture will be required for each sow. Without pasture about 3 pounds of grain a day will be required.

The sows which farrow September 1 or thereabouts will require about the same feed as for the spring farrowing; that is, an average of about 9 pounds a day for 60 days. The sows which do not farrow in the fall will ordinarily need grain during September and October at the rate of about 3 pounds per day, but after breeding this should be increased to 4 pounds as indicated in the previous paragraph. "Grain," as already stated, is used to include not only the actual cereal but possible substitutes therefor. It is usually possible to handle sows on a good deal less actual grain than outlined above, but the other feeds substituted must provide nutrients equivalent to the grain ration indicated.

Without putting down here all of the arithmetical calculations involved, it will be sufficient to state that if a bunch of sows are fed as outlined above and if they produce an average of three litters every two years, each litter will cost at weaning time 885 pounds of grain or its equivalent and one-fourth to one-half acre of pasture. Without good pasture about 1125 pounds of grain will be required. Surveys by the United States Department of Agriculture in Iowa and Illinois indicate that the average litter requires approximately 1100 pounds of grain to produce to weaning time, but the amount of pasture used was very small. An extensive investigation into the cost of production carried on in

North Carolina showed an average of 935 pounds of grain required for each litter brought to weaning age. The amount of pasture required was not very carefully checked, but seems to have been about the same as at the Oregon Agricultural College. It seems very safe, therefore, to figure that with three litters every two years there will be required for each litter about 1125 pounds of grain or its equivalent without pasture, but that one-fourth to one-half acre of good pasture will reduce this amount by 200 to 250 pounds.

Labor requirements and cost. The next item to consider is the matter of labor, which of course depends much upon the conveniences at hand. The investigations of the Department of Agriculture in Iowa and Illinois indicate a labor requirement of 9⅜ hours for each litter. This figure, however, is based upon estimates of the farmers, and our experience in checking such estimates indicates that they are too low. The low pig crop, moreover, indicates that the pigs did not receive proper attention. The North Carolina experiments indicate a labor requirement of over 16 hours per litter. This is about right where the sows are run in pasture lots with colony houses so that there is little or no cleaning to do. Where the sows are handled in a large centralized house, however, so that the pens have to be cleaned and bedded, the labor is at once doubled.

We believe it safe to figure that 15 hours per litter is about the smallest amount of labor with which the pigs can be given proper care and this only where a comparatively few sows range over a large area of clean well-drained ground so that the matter of cleaning and sanitation is taken care of without labor. On the other hand, with a large number of hogs in one place requiring much attention to cleaning, bedding, and sanitation, the labor requirements will be at least 30 hours per litter. The average is probably around 20 hours. These estimates presume the feed to be stored at some convenient place ready for use. No grinding or chopping is included. Convenient equipment is also assumed. Expensive or elaborate equipment is not necessary; in fact, it is our observation that elaborate equipment adds more labor for its own upkeep than it saves in the handling of the pigs.

Overhead costs. In addition to the above there are the overhead costs for interest, losses, housing, and boar charges. These overhead costs for one sow for one year will be approximately as follows:

Interest, 8 percent of $20.00	$ 1.60
Losses, 2 percent of $20.00	.40
Housing and special fencing, 12 percent of $50.00	6.00
Boar charges (one boar for 10 sows)	5.00
Incidentals	.50
Total overhead for one sow for one year	$13.50
Total for one litter	$ 9.00

Taking an arbitrary feed cost of 1½c per pound, and labor cost of 30c an hour, the total per litter can be summarized as follows:

Overhead as above	$ 9.00
Feed, 885 pounds at 1½c	13.28
Pasture, ¼ acre at $12.00	3.00
Labor, 20 hours at 30c	6.00
Total cost per litter	$31.28

Under especially favorable conditions these costs might be reduced by perhaps 10 percent, but they will be higher more often than lower.

Cost per pig weaned. Having determined the cost of the litter, the next problem is the cost per pig weaned. In the investigations of the Department of Agriculture, it was found that the average number of pigs farrowed was 7, and that 4.6 pigs per litter lived to weaning time. Under better care, however, this figure can be raised. The average number of pigs at weaning time in the North Carolina experiments was 5.45, and at the Oregon Agricultural College 5.5. These figures, it must be borne in mind, are for a large number of sows carried through several years, with the usual amount of disease and other misfortune. The

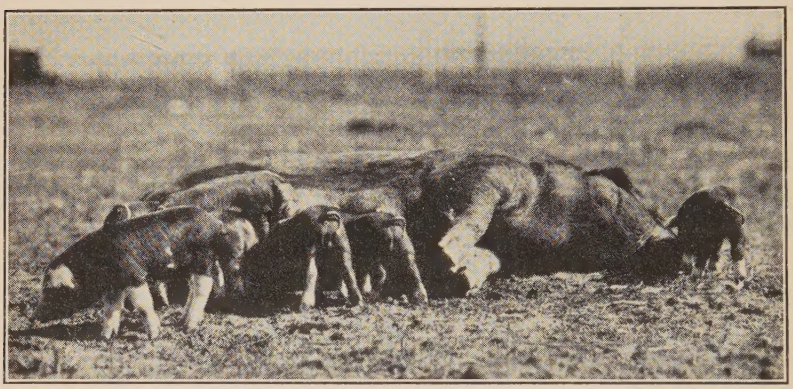

Fig. 2. The cost of pork production depends largely upon the number of pigs in the litter.

average number of pigs weaned per litter in Oregon is probably not higher than the Iowa and Illinois figure of 4.6, but with good management should be raised to at least 5.5. Of course, it will be understood that even under the most careful management, the size of the litters will vary enormously, ranging from nothing up to 10 or 12 pigs, but by the time the large and small litters are all averaged together through a series of years, the average man will raise 4 to 5 and the good manager 5 to 6.

Figuring the cost of the litter at $31.28 as in the preceding paragraph and 5.5 pigs per litter, the average cost would be about $5.69. The influence of the size of litter weaned upon the cost per head is shown by the following table, the cost of the litter being $31.28 in each case.

Number of pigs weaned	Cost per pig
3	$10.43
4	7.82
5	6.26
6	5.21
7	4.47
8	3.91
9	3.47
10	3.13

Cost from weaning to market. The cost of growing a pig from weaning to maturity is very much easier to calculate and subject to very

much less variation than the cost of producing the weanling. The cost may be briefly summarized as follows: It will require about 715 pounds of grain or its equivalent in other feeds to grow the pig from 30 to 200 pounds live weight. The total labor requirement will average about three hours per head, while the interest, losses, and incidentals will run about 50 cents per head. Where the pig is grown on the same farm that the weanling was raised, the housing that took care of the sow and litter will often take care of the growing and fattening pig, but if a special housing and equipment must be provided for the growing and fattening pig the cost will be about the same as for the weanling; that is, about 80 cents per head. The final cost will then be about as follows:

Feed to grow pig from 30 to 200 lbs., 710 lbs. at 1½c	$10.65
Labor, 3 hours at 30c	.90
Interest, losses, and incidentals	.50
Housing and fencing	.80
Total cost of growing pig from 30 to 200 lbs.	$12.85
Cost of weanling as in preceding section	5.69
Total cost of a 200 pound pig	$18.54
Cost per 100 pounds	$ 9.27

Cost of pork in terms of grain. The final cost of $9.27 per hundred pounds would be equivalent to the cost of 618 pounds of grain at 1½c per pound. In reality it has only required 450 pounds of grain or its equivalent to produce the 100 pounds of pork. The remainder of the cost is in labor and other overhead charges. The United States Department of Agriculture has tabulated the comparative prices of corn and hogs through a series of years, and has found that 100 pounds of pork live weight has brought the same price as 616 pounds (11 bushels) of corn. They also found that when the price of pork was higher than this ratio, there was a tendency for hog production to increase, and when it was lower there was a tendency for hog production to decrease. It has been assumed, therefore, that a normal cost of production, allowing a market price for everything, would be about on this basis.

Since the depression in grain prices after the war, the price of feed has gone down more than the other costs, with the result that it takes pretty close figuring to produce hogs at a price that will justify selling 100 pounds of pork for the price of 616 pounds of corn. In our estimates the ratio of 618 pounds of grain to 100 pounds of pork checks more nearly with the United States Department of Agriculture figures than would be expected, but on account of the wide publicity that has been given the 616 pound (11 bushels of corn) figure, we are using that instead of our own, with the understanding that at present the cost is apt to run over rather than under that figure due to the fact that labor and incidental costs have not decreased as much as has the price of grain.

Weaner pig worth 30 percent as much as market pig. The relation of the cost of a weaner pig to the finished product is pretty well established by the above figures, in which it is shown that the weaner pig was costing about $5.69 per head when the finished 200 pound pig was costing $18.59. A very satisfactory rule for determining the value of weaner pigs would be to figure a good weaner weighing around 30 to 40 pounds as worth as much as 60 pounds of pork live weight, or that he is worth 30 percent as much as the finished market pig.

Weanling pigs should sell by the head. Weanling pigs, if of reasonable size and thrifty, should sell by the head rather than by the pound. A weanling weighing 40 pounds is certainly not worth one-third more than one weighing 30 pounds, since the gain from 30 to 40 pounds is very cheaply produced, whereas the original 30 pounds includes the birth cost with all of its attendant expenses.

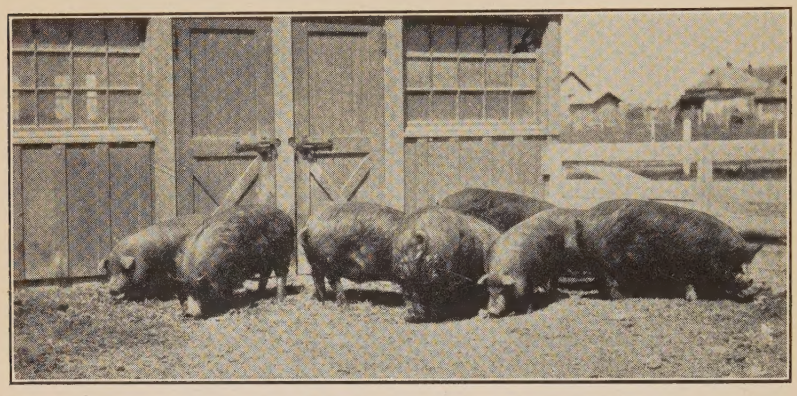

Fig. 3. One hundred pounds of finished pork, live weight, should sell for the price of not less than 616 pounds of grain.

Value of pig varies with the season of the year. In determining the price of a weanling pig we must consider not only the price of pork at the moment, but the probable market at the time the pig is finished. For example, a pig ready to wean the middle of April can be finished and sold on the good market of August and September, while a pig not weaned until June can not be finished until the usual fall slump in prices. The table below shows the average monthly top prices at the Portland Stock Yards for the fourteen years, 1910 to 1923 inclusive:

January	$10.27	July	$11.94
February	10.72	August	12.23
March	11.25	September	12.05
April	11.60	October	11.15
May	11.27	November	10.32
June	11.03	December	9.94
		Average top	$11.63

Reducing costs. The question naturally arises as to whether the feed requirements may not be reduced below the figures quoted. It must first be understood that the amounts of feed quoted will not raise a pig unless the rations be reasonably well balanced. Straight grain is a very unsatisfactory feed and the grain should be supplemented with some protein concentrate such as tankage, fish meal, skim milk, or buttermilk, and it should also have some additional supplement such as legume hay, rape, clover, or alfalfa pasture. Normally, there will be required only about 400 pounds of actual corn, wheat, or barley to produce 100 pounds of pork, but there will be enough of these other supplemental feeds to bring the cost up to a point equivalent to about 450 pounds of grain. The question will be asked as to whether the use of pasture may not reduce the grain requirements even more than that indicated. The answer is that the use of pasture beyond the point of properly balancing

a ration and affording succulence does not usually reduce the cost of production. Pigs fed a light ration on pasture will grow slowly and apparently make cheap gains, but by the time they are fattened and ready for market the total feed consumption will be little if any less than where they had been given grain in a self-feeder. Consequently, the use of a light ration on pasture should be considered as a means of holding pigs for a later market and not as a means of reducing the cost.

Use of waste reduces costs. The real method of reducing cost is by the use of waste products of the farm which have no other value. Skim milk from the dairy, for example, may be substituted for a considerable proportion of the grain, with the saving of about one pound of grain for every four pounds of milk used. Where the milk has little or no commercial value, this may effect a very considerable saving. Likewise on the grain farms, the young shotes may be used to clean up the stubble fields and thus make several pounds of growth at little or no cost. Likewise, the brood sows may be run for a time on the stubble with little cost. Garbage where available may also be substituted for much of the other feed at a considerable saving. Legume hay, especially alfalfa, has been suggested as a partial substitute for grain. A very small amount of hay along with a little milk or tankage as a supplement to the grain is very valuable, but to attempt to use even the best quality of legume hay as a substitute for a considerable portion of the grain does not lower the cost of the pork produced.

Good management reduces costs. Good management is always an important means of reducing the cost of pork; using only well balanced rations, keeping the pigs healthy, and saving large litters. The figures quoted are based upon good management of the kind any reasonably intelligent farmer might be expected to exercise. The exceptional man can do better. The careless man will do a lot worse.

Who should raise pigs. Through the last ten years the farmer who has fed his own barley to pigs has received the market price for his grain, labor, and overhead expenses, but no profit above that. The California barley and eastern corn have mostly been fed at a loss, except when used as a supplement to waste products that would otherwise have had no value. This condition has led O. A. C. to formulate a very definite policy with regard to hog production in Oregon. This policy was first published some seven or eight years ago, but it is still our policy and will continue to be until conditions arise which justify a change. It is as follows:

O. A. C. recommendations as to pig raising.

I. That the dairy farms that do not sell whole milk should raise not over one-half of their calves and that they should raise one pig for each cow milked. Handled in this manner 100 pounds of skim milk should net from one-fourth to one-fifth the farm price of 100 pounds of grain, providing the business is economically managed and that the grain used is charged at farm prices and not at feed dealers' prices.

II. That the grain farms try to raise about one pig for each five to twenty acres of grain. A pig should make 50 to 75 pounds of gain on stubble but this is not all net profit because the remainder of his gain

will probably be made at a loss. This loss should be slight if there is plenty of alfalfa pasture during the growing stage but will be heavier if there is no pasture. It is practically always safe to recommend pig raising where a gain of 50 pounds or more on stubble can be obtained. It is generally advisable that the farmers raise their own feeder pigs unless it be where grain farms and alfalfa farms are in close proximity, in which case the alfalfa farm can well raise the feeders and the grain farmer fatten them.

It is recognized, however, that where harvest is exceptionally clean or where water is not available, pig raising is not advisable.

III. That pigs can be fattened on garbage and that grain is needed only when there is a shortage of garbage. Pigs so fed fatten rapidly and make pork good enough to top the market. The garbage should be as free as possible from foreign material, coffee grounds, soap, dish water, tooth picks, and broken dishes. If fresh it does not need to be cooked. The average amount of garbage per person is about one-third pound per day. Six to eleven pounds of garbage for fattening pigs will replace one pound of barley. Garbage is not recommended for sows suckling pigs or for shotes under 75 pounds unless fed in very limited amounts.

IV. That where pigs are fed entirely on marketable feed and good pasture they should bring a price per 200 pounds approximating the price of 616 pounds of grain. The United States Department of Agriculture estimates that the normal ratio between the price of corn and pork is 616 pounds (11 bushels) of corn to 100 pounds of pork live weight. The average ratio of grain prices to pork prices in Oregon is less favorable than this and more commonly is five or five and a half. For this reason we do not recommend that pig raising be attempted where the pigs cannot be used as a means of marketing by-products such as skim milk, stubble, garbage, waste fruit, etc. A large increase in our supply of feed grain accompanied by a much lower price of such grains might change this condition.

V. That pig raisers should not buy feed other than tankage or other supplements and that farmers who do not have the grain on their own farms should not raise pigs. That if the recommendations above would be literally followed Oregon would produce about 250,000 hogs annually to which could be added around 25,000 grown largely on garbage. This would make 275,000 pigs which is somewhat more than we are now producing, and which is almost enough to supply local needs.